

IN THE CLAIMS:

1-27. (Cancelled)

28. (Previously Presented) A gypsum panel comprising:
a gypsum core having a planar first face and a second face;
a fibrous facing material adhered at least to the first face by gypsum in the gypsum core at least partially penetrating into the fibrous facing material;
a high energy radiation cured coating of a radiation curable formulation on the fibrous facing material, wherein the radiation curable formulation is essentially free of water, and comprises
at least one high energy radiation curable polymer having ethylenically unsaturated double bonds, and
at least one high energy radiation curable reactive diluent; and
an aggregate material on and/or in the high energy radiation cured coating, wherein the at least one high energy radiation curable polymer having ethylenically unsaturated double bonds is urethane acrylate oligomer or epoxy acrylate oligomer and the at least one high energy radiation curable reactive diluent is hexanediol diacrylate.

29. (Previously Presented) The gypsum panel of claim 28, wherein the gypsum core includes a water-resistant additive in an amount sufficient to improve the water-resistant properties of the core.

30. (Previously Presented) The gypsum panel of claim 29, wherein the water-resistant additive comprises at least one of a wax emulsion, an organopolysiloxane and a silicate.

31. (Previously Presented) The gypsum panel of claim 30, wherein the core is essentially void of starch.

32. (Previously Presented) The gypsum panel of claim 28 wherein the aggregate material is selected from ceramic microspheres, glass microspheres, calcium carbonate, sand, aluminum oxide, crushed stone, glass fibers, gypsum and perlite.

33. (Previously Presented) The gypsum panel of claim 28 wherein the gypsum core includes at one of a wax emulsion, an organopolysiloxane and a siliconate in an amount sufficient to improve the water-resistant properties of the core; the gypsum core is essentially void of starch and the fibrous facing material comprises glass fibers.

34. (Previously Presented) The gypsum panel of claim 28, wherein the radiation curable formulation comprises a photoinitiator present in an amount from 0.05 to 20 weight percent based on a total weight of polymerizable components in the radiation curable formulation.

35. (Previously Presented) The gypsum panel of claim 28, wherein the fibrous facing material is selected from the group consisting of a multi-ply paper facing material, a non-woven mat of mineral fibers, a single-ply glass fiber mat facing material, a woven or non-woven mat of synthetic fibers, and a blend of mineral fibers and synthetic fibers.

36. (Previously Presented) The gypsum panel of claim 35, wherein the fibrous facing material has a dried coating of an aqueous mixture of a filler and a binder.